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ABSTRACT

In an attempt to test the role of situational factors on alcohol consumption, this laboratory study was designed to determine if angered subjects would drink more in a tasting task than nonangered subjects. It was hypothesized (1) that subjects who were angered would drink more in the tasting task than control subjects; and (2) that subjects who were given an opportunity to retaliate against their provoker would drink less than subjects who were angered without an opportunity to retaliate. Sixty college students served as subjects and qualified for the study by scoring in the heavy drinker category of the Drinking Habits Questionnaire. Paired subjects were either assigned to the experimental group with angered conditions or the no-anger control condition. The main findings of the experiment were consistent with the prediction that subjects in the angered condition would drink significantly more than subjects in the anger-with-retaliation condition. The results also provided support for the hypothesis that certain situations are more likely to lead to relapse in alcoholics following treatment. (Author/PC)

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Elicitation of Anger and Opportunity for Retaliation as Determinants of Alcohol Consumption

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The alcohol taste rating task has been used in a series of experiments investigating potential determinants of alcohol consumption in social drinkers and alcoholics. The tasting task is a method for obtaining a covert, behavioral measure of alcohol consumption. Subjects are asked to taste and to compare selected alcoholic beverages (e.g. wines) in order to rate the drinks on particular taste dimensions. The amount of alcohol consumed is the dependent variable; the independent variable is manipulated prior to the introduction of the tasting task. This procedure thereby allows for the assessment of potential factors influencing drinking behavior. Higgins and Marlatt (1973) have tested the relationship between the fear of pain and alcohol consumption using the tasting task in an attempt to examine the tension reduction hypothesis of alcoholism. Marlatt, Demming and Reid (1973) have utilized the tasting task to determine the effect of cognitive expectancies on loss of control drinking in alcoholics. These studies have shown that the tasting task can provide an effective, non-obtrusive measure of alcohol consumption and can be used to test hypothesized factors influencing the etiology of alcoholism.

The present study was designed to examine the effects of anger elicitation upon alcohol consumption. Based on the relapse data of an outcome study testing the effects of aversive conditioning procedures with alcoholics

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(Marlatt, 1973), it was found that 29 percent of the relapse cases occurred when the subject was frustrated or angry, but failed to express these feelings constructively. These data suggest that alcoholics may have difficulty expressing anger and as a result "turn to the bottle" when these situations arise. This explanation emphasizes the significance of environmental and situational factors in drinking behavior unlike the "disease theories" of alcoholism which suggest that relapse situations are the result of an internal "physiological craving" for alcohol (Jellinek, 1960).

In an attempt to test the role of situational factors on alcohol consumption, the present laboratory analogue study was designed to determine if angered subjects would drink more in the tasting task than non-angered subjects. If anger is related to drinking, as suggested by the relapse findings, then subjects who are unable to express their anger would conceivably drink more than those subjects who are given the opportunity to express their anger. Therefore, it was hypothesized 1) that subjects who were angered would drink more in the tasting task than control subjects who were not provoked to anger; and 2) that subjects who were given an opportunity to retaliate against their provoker would drink less than subjects who were angered without an opportunity to retaliate.

Method

Using a 3 x 2 factorial design, 30 male and 30 female college student subjects were randomly assigned to one of three main conditions: 1) an anger condition; 2) an anger with retaliation condition; or 3) a no-anger, no-retaliation control condition. Each subject participated in the experiment with a same-sexed confederate and a same-sexed experimenter.

In order to qualify as a subject for the experiment, students had to be between the ages of 21-35, and had to score in the heavy drinker category of the Drinking Habits Questionnaire (Cahalan, et al., 1969) which was distributed in several psychology undergraduate classes. Students who met these criteria were asked to participate in the "wine tasting study" and told that they would be working in pairs for the experiment.

The confederate and the subject were taken to the laboratory by the experimenter and told that the purpose of the experiment was to test the relationship between cognitive functioning and the ability to make taste discriminations of alcoholic beverages. Subjects were first to complete an exercise testing their intellectual capacity, and then would proceed to the "tasting task". This cover story was used as a rationale for the two tasks in which the anger manipulation and the retaliation condition would occur.

An anagrams task was used for the alleged test of cognitive functioning. This task, patterned after a procedure developed by Konecni and Doob (1972), provides a legitimate context in which the provocation to anger can be manipulated. The anagrams consisted of seven names of cities which subjects were given seven minutes to unscramble. The confederate, who already knew the correct answers, was finished with the task in two minutes and began to introduce the annoyance manipulations for subjects in the anger condition and in the anger with retaliation condition.

The confederate commented "Haven't you finished yet?", and proceeded to insult the subject's intellectual capacity, dress, manner and general appearance at 30 second intervals. The purpose of these comments was to annoy the subject as much as possible. The anagrams employed in the experiment

were difficult and very few subjects could finish more than two or three. This would presumably add to the subject's frustrations in the angered conditions, since the confederate had completed the entire list. Subjects in the no-anger, no-retaliation control condition were exposed to a neutral confederate who sat quietly throughout the anagram task, and did not disturb the subject.

In the second phase of the experiment, subjects in the anger with retaliation condition were given an opportunity to retaliate against the provoking confederate by delivering shocks for errors made on a paired-associate task. In a standard teacher-learner paradigm, also adapted from a procedure outlined by Konecni and Doob (197?), the confederate was assigned on an apparently random basis the role of learner and was told to memorize a list of 30 paired-associate words in four minutes. The subject was assigned the role of teacher and was instructed to examine the confederate's accuracy on the task. The subject was to say "correct" for every right response given and to deliver a supposedly painful but harmless electric shock to the confederate for every incorrect response. The subject was informed that a shock of fixed intensity and duration would be delivered each time the shock button was pressed.

No shocks were actually delivered. However, with the impressive array of shock equipment and the experimenter's careful explanation of how the equipment functioned, subjects were led to believe that the procedure was realistic. The confederate made 14 intentional errors in the recall of the associate list, thus allowing all subjects to deliver a fixed number of shocks in the procedure.

Subjects in the anger-no-retaliation condition were given identical instructions for the paired associate task, but were not given the opportunity to shock their provoker. Instead, once the task began, a breakdown of the shock machine was staged. The experimenter intervened and suggested that the subjects proceed with the tasting task, while he/she tried to have the machine fixed before the experiment was over. These subjects proceeded to the "tasting task" without the opportunity for retaliation. Subjects in the control condition were given the tasting task immediately after the anagram task. However, to keep the time period constant, these control subjects were asked to sit in the waiting room for 15 minutes with the explanation that the confederate would complete the tasting task first.

All subjects were then given instruction for the tasting task. Subjects were told that they were going to make fine taste discriminations with three different wines. Subjects were to sample each of the three wines presented in three, 24 ounce decanters, and to rate and compare the drinks on a list of 65 adjectives that appeared one at a time in the window of a memory drum. Subjects were told to work at their own pace and were reminded to take as many sips of the drinks as needed to rate the beverages. Since the subjects were not aware of how many adjectives were present on the memory drum, nor of the time limit provided for the task (15 minutes), ad-lib drinking was encouraged.

After the wine-tasting phase of the experiment, subjects completed a post-treatment questionnaire requiring them to rate, on a 7 point scale, their involvement with all participants in the study in terms of such dimensions as likeable, friendly, domineering, helpful, etc. This questionnaire was actually designed as a manipulation check to assess the effectiveness of the anger provocation procedure. Finally, the subjects were debriefed in order to

determine if they were aware of the manipulations and to explain the true purpose of the experiment.

Results

Manipulation Check: Ratings from the post-treatment questionnaire indicated that subjects in the angered conditions gave significantly different ratings of the confederate than subjects in the no anger control condition. Compared to control subjects, angered subjects rated the confederate as less likeable, more aggressive, more domineering, and less friendly (F values range from 3.79 to 10.07, df=2/54, p <.01). These results suggest that the anger manipulation employed by the confederate was successful.

Alcohol Consumption: The condition means for alcohol consumption in the taste rating task are presented in Table 1 (attached). Analysis of variance for this measure showed a significant main effect for the anger manipulation factor (F=3.91, df=2/54, p <.05). Sex of subjects, and the interaction between treatment and sex were not significant. Subjects in the angered-only condition drank significantly more wine ($\bar{X}$=7.10 ounces) than subjects in the anger with retaliation condition ($\bar{X}$=4.61 ounces; p <.01). The mean for the no anger control group ($\bar{X}$=5.67 ounces) was not found to differ significantly from the other two conditions.

The number of sips for each subject was continuously recorded during the tasting task by an assistant who observed the subject through a one-way mirror. In order to evaluate drinking behavior throughout the task period, the 15-minute rating session was divided into three five-minute blocks. An estimate of the average amount per sip was determined by dividing total consumption by the total number of sips taken. Analysis of variance for this variable showed that males consumed significantly more ounces per sip

($\bar{X}$=.179) than female subjects ($\bar{X}$=.121, F=7.95, df=2/54, p <.01). In order to assess changes in consumption rates over the 15-minute time period, estimates of consumption per 5-minute block were obtained by multiplying the estimated amount consumed per sip by the number of sips obtained in each five-minute interval. Figure I (attached) presents the average amount consumed in fluid ounces for each five-minute block for subjects in each of the three treatment conditions. It can be noted that drinking decreased over the task period for all subjects. This decrease, found in other studies using the taste rating task, seems to be due to the fact that subjects drink less over the course of the task as they gain more information about the taste qualities of the drinks to be rated.

Discussion

The main findings of the experiment were consistent with the prediction that subjects in the angered condition would drink significantly more than subjects in the anger with retaliation condition. Subjects in the control condition drank an intermediate amount of alcohol suggesting that the anagrams task may have been sufficiently frustrating in itself to encourage moderate drinking. But the question remains, why do angered subjects drink more than non-angered subjects? And, why does retaliation decrease drinking rates. These results can be explained in terms of several theoretical frameworks. For example, the findings are consistent with the tension-reduction hypothesis, which suggests that individuals drink to reduce tension. Perhaps subjects in the retaliation condition experienced a reduction in tension due to a catharsis effect. This explanation, however, needs further testing in order to account for the results of the current study. If the catharsis notion is correct, than any expression of anger, regardless of the target, should produce a similar drop in drinking.

The results of this experiment provide support for the hypothesis that certain situations are more likely to lead to relapse in alcoholics following treatment. The analysis of relapse situations reported by Marlatt (1973) found that the frustration and anger situation led to the greatest number of relapses. These data also showed that social pressure was the second most common situation in which relapse occurred. When alcoholics were faced with a situation in which they were encouraged to drink by others, they had difficulty refusing. This situation and the angered situation seem to have some important similarities. Both situations deal with stress. According to Sells (1970), stress occurs in a situation in which an individual is called upon to respond under conditions in which he has no adequate response available, and the consequences of not responding are of importance to him. Based on this idea, in relation to the relapse data, it seems that alcoholics may experience stress in terms of a loss of personal control in situations where they have no adequate responses available. When this loss is experienced, it is hypothesized that the alcoholic will engage in some behavior to regain a sense of <u>perceived</u> control over the situation. This control hypothesis is substantiated by McClelland's recent finding (McClelland et al, 1973) that alcoholics demonstrate increased fantasies of personal power or control when administered alcohol. These findings suggest that alcohol may enable the alcoholic to regain the sense of perceived control which is lost in stressful situations. Therefore, unless the alcoholic is trained to make alternative responses in these stressful situations, drinking may continue to be the only available alternative. At the University of Washington, Chaney (1974) is currently conducting a study in an attempt to examine the effect of a

behavioral social skill program with alcoholics. It is hypothesized that, if alcoholics can acquire specific social skills which apply to stress situations, then the alcoholic will no longer need to rely "on the bottle" for his sense of power.

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TABLE 1

Ounces of Wine Consumed: Table of Means

	Angered Only	Angered with Retaliation	No Anger Control	Condition Means:
Males	7.31	4.86	6.69	6.28
Females	6.90	4.37	4.66	5.31
Condition Means:	7.10	4.61	5.67	

----- $p < .01$ -----

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